SDSU/CIRM Stem Cell Internship Program

Grant Award Details

SDSU/CIRM Stem Cell Internship Program

Grant Type: Bridges

Grant Number: TB1-01193

Project Objective: This program provides stem cell training and internships to undergraduate and graduate level students at SDSU. 10-11 students are recruited each year from biology, chemistry, engineering classes and receive their stem cell techniques course at Scripps. Internships are performed at prominent San Diego area research institutes. Students receive training in bioethics, writing, attend various seminar series, and participate in multiple scientific meetings/colloquia with opportunities to present their work.

Investigator:

Name:	Ralph Feuer
Institution:	San Diego State University Foundation
Type:	PI

Award Value: $4,156,315

Status: Closed

Grant Application Details

Application Title: CIRM Stem Cell Internship Program

Public Abstract:

This program will provide advanced laboratory training in stem cell techniques for a total of ten, high-achieving undergraduate and master's graduate students each year. This training will expand the pool of personnel with the state-of-the-art training necessary to undertake careers in stem cell and regenerative medicine research. Trainees will be recruited from existing and highly successful science research preparation programs that draw from the university's diverse student population and include students that might not otherwise have the opportunity to acquire the skills to succeed in a stem cell research lab. A new curriculum at the home institution includes an advanced stem cell lecture course, research methods preparation, research seminars, and a general education curriculum, which together will enhance understanding of stem cell science amongst trainees and the general university population. After trainees take the stem cell lecture course and research methods preparation, they will take a short-course at a shared research lab, which will be followed directly by the focus of the program, a 12-month internship experience at one of four local stem cell research facilities. During the internship, trainees will attend stem cell research seminars and meet monthly with other trainees, as well as home and host institution faculty and administrators; these meetings are designed to integrate the internship experience with the proposed auxiliary educational activities, and to optimize mentorship of the trainees, as well as assessment of trainee progress and program goals. Culminating components of the program include a written research paper and a presentation describing internship activities for undergraduate-level trainees, and a written thesis and oral thesis defense for graduate-level trainees. Finally, the stem cell lecture course and general education curricula, as well as the establishment of research and training collaborations between the home and host institution faculty, provide program sustainability beyond the initial award period.

Statement of Benefit to California:

Human embryonic stem cells can provide the wherewithal for stimulating the growth of replacement tissues for diseased organs and ultimately can yield cures for diseases such as diabetes, neurological degenerative disorders like Parkinson's and cardiac failure. Beginning with basic research methods and culminating with hands-on experience with human embryonic stem cells, the training of a new generation of scientists to address these questions must begin in earnest in California's major universities, both at the undergraduate and graduate level. Our numerous life sciences faculty members, who utilize stem cell research techniques in their pursuit of the basic processes controlling cell regeneration, can serve effectively as mentors for student trainees. These faculty focus in their labs on fundamental problems, including stem cell replacement of damaged heart tissue, potentiation of stem cells to retard cardiac aging, stem cell replacement of arterial wall macrophages, stem cell molecular mechanisms underlying nervous system regeneration and the cell signals that trigger differentiation of stem cells into specific cell lineages. Our proposed training program will involve students in 12 month internships at major local research centers and will serve to expand the stem cell research community in California by significantly increasing the number of young investigators qualified to conduct leading edge stem cell research.
